Amendments to the Drawings:

The attached fifteen (15) sheets of formal drawings replace the previously submitted informal drawings for Figures 1 – 15. No new subject matter has been added by the submission of these formal drawings.

Attachment: Replacement Sheets (15 pages)

Remarks

The Applicant respectfully requests reconsideration of this application in view of the amendments and the following remarks. In this response, claims 1, 3, 4, 6, 8, 9, 11, 13, 14 and 16-18 have been amended, without prejudice, no claims have been cancelled and nine new claims, i.e., claims 19-27, have been added. Hence, upon entry of this amendment, claims 1-27 are presented for examination.

Drawing Objections

The Office Action Summary indicates the drawings filed on September 13, 2000 are objected to by the Examiner. Notably, the present Office action provides no reason or explanation for the objection to the drawings; and such drawings have been affirmatively indicated to be acceptable by the Examiner for purposes of examination in the two prior Office actions mailed May, 5, 2004 (Paper No. 6) and December 23, 2004 (Paper No. 8). At any rate, in an attempt to provide a complete response, the undersigned provides herewith fifteen (15) replacement sheets of formal drawings to replace the previous informal drawings now for the first time objected to by the Examiner. No new matter has been added.

If there are particular objections, other than the informal nature of the previously filed drawings, the undersigned respectfully requests the Examiner to make note of such objections in the next action; otherwise, the undersigned respectfully requests the Examiner to withdraw the drawing objections.

Claim Rejection – 35 U.S.C. §112

In the Office action, the Examiner indicated the phrase "application layer" is considered "new matter and as such will not be addressed." Although not expressly stated in the Office action, the undersigned treats this rejection as a rejection of claims 1, 6, 11 and 17 under 35 U.S.C. §112, first paragraph.

The undersigned respectfully submits the previous addition of the phrase "application layer" to claims 1, 6, 11 and 17 did not introduce new matter into the claims. In the context of the present application, one skilled in the managed service provider field

would understand that "application layer" services refers to the application layer of the four layer TCP/IP networking model, the five layer TCP/IP networking model and/or the seven layer OSI networking model. Examples of various application layer services are provided throughout the specification. For example, the specification refers to "host services" and "hosting services" in relation to hosting an internet web site for a customer, for example. The specification also specifically calls out various application layer services, such as web site hosting (HTTP) and e-mail services (SMTP). Meanwhile, at line 9 of page 15, the specification expressly discusses the delivery of IP services, including "application firewall" services and at line 16 of page 16 the specification expressly describes an embodiment in which one of multiple processors may operate on one part of the data "(e.g,. [*sic*] the Level 7 processing)" [an obvious reference to layer 7 of the seven-layer OSI networking model] and another of the multiple processors may concurrently operate on another part of the data (e.g., the Level 3 processing). In view of the foregoing, the undersigned believes the written description adequately supports use of the phrase "application layer" in reference to services that may be supported by a service provider implementing various embodiments of the present invention. For at least these reasons, undersigned respectfully requests the Examiner to withdraw the 35 U.S.C. §112, first paragraph rejections.

Claim Rejections
Double Patenting

In the Office action, claims 1-18 are provisionally rejected under the judicially created doctrine of double patenting over claims 1-19 of copending Application No. 09/952,520 (Attorney Docket No. FORT-000700). Without acknowledging the appropriateness of this provisional obviousness-type double patenting rejection, in order to facilitate prompt allowance of the present application, the undersigned submits herewith a terminal disclaimer to overcome this rejection. Consequently, the undersigned respectfully requests the Examiner to withdraw the provisional double patenting rejection and allow the pending claims.

Claim Rejections – 35 U.S.C. §103
Chan in view of Alles, de Boer and Rao

In the Office action, the Examiner rejected claims 1, 6, 11 and 13-18 under 35 U.S.C. §103(a) for allegedly being unpatentable over US Patent No. 6,466,976 of Alles et al. (hereafter "**Alles**") in view of US Patent No. 6,658,013 of de Boer et al. (hereafter "**de Boer**") and further in view of US Patent No. 6,674,756 of Rao (hereafter "**Rao**"). The undersigned respectfully disagrees with the Examiner's characterization of the teachings and/or applicability of Alles, de Boer and Rao to the claims and points out several distinctions between the claimed subject matter and the relied upon references individually and in combination.

As presently understood by the undersigned and as pointed out in the previous response filed March 2, 2006, Alles generally relates to an internet service node (ISN) 150 in which subscribers or users of an Internet access service have associated service policies embodied as process rules, such that separate processing rules can be associated with each subscriber (see Summary of the Invention; Figure 1). Importantly, the ISN of ***Alles does not provide customized services*** to subscribers, but rather it provides and implements customized service ***policies***. The service policies of Alles' ISN are implemented on a single node logically interposed between users and the Internet (and the services being accessed by the subscribers). No mention is made by Alles with respect to establishing a secure connection between two network devices, one of which includes a plurality of processors in a ring configuration, to provide both routing and customized application layer services to a plurality of customers. No mention is made by Alles with respect to use of virtual routers. No mention is made by Alles with respect to establishing a virtual private network on behalf of each of a plurality of customers between virtual routers partitioned to the customers. No mention is made by Alles with respect to dynamically allocating the resources of the ISN among the multiple subscribers serviced by the ISN.

As presently understood by the undersigned, de Boer generally relates to survivable rings, i.e., rings that possess an automatic ring protection switching functionality to allow the rings to maintain survivable traffic in the face of a gateway failure. De Boer discusses enabling the survivability of inter-ring traffic in the context of

a primary inter-ring connection through a primary gateway node and a "shadow" inter-ring connection at a secondary gateway node. As explained in the previous response filed March 2, 2006, according to de Boer, the network devices are coupled in rings passing through each of the two gateways. The first gateway links the network rings such that a communications service is provided between the two rings, and the second gateway monitors the first gateway and establishes a new inter-ring connection upon failure of the first gateway. No mention is made by de Boer with respect to the ring networked network elements or gateway devices providing managed services, such as application layer services on behalf of subscribers; rather, the ring networked network elements of de Boer are simply clients of the connectivity services that are provided by the two gateways, which are simply linked to one another to provide the feature of survivability. No mention is made by de Boer of establishing a secure connection between two network devices, one of which includes a plurality of processors in a ring configuration, to provide both routing and customized application layer services to a plurality of customers. No mention is made by de Boer with respect to use of virtual routers or virtual private networks. No mention is made by de Boer with respect to dynamically allocating the resources of the gateway nodes among multiple subscribers.

As presently understood by the undersigned, Rao generally relates to a physical network switch that may be partitioned into multiple virtual routers among which switch resources may allocated (see Abstract); however Rao's manual configuration process (see col. 19, ll. 44-52) is an example of one of the problems being addressed by embodiments of the present invention. Notably, each router of Rao includes it own router table and supports a variety of physical and network layer services, such as ISDN, modems, layer 2 switching and layer 3 routing, but Rao makes no mention of providing customized application layer services. Meanwhile, Rao makes no mention of establishing a secure connection between two network devices, one of which includes a plurality of processors in a ring configuration, to provide both routing and customized application layer services to a plurality of customers.

Further, the undersigned would like to address a misunderstanding on the part of the Examiner created in part by the remarks of the response filed March 2, 2006 (the "Previous Remarks"). In the Previous Remarks, the prior assignee's representative

indicated "the first system is able to provide application layer services such as routing services for the one or more second systems," which has been apparently interpreted by the Examiner as an acknowledgement that any reference mentioning "routing" teaches the provision of application layer services. As understood by the undersigned, it was not the intention of the prior assignee's representative to equate application layer services and routing services generally; but, rather to illustrate some routing services, i.e., layer 7 routing services, are examples of application layer services. Typically, routing is performed at layer 3 (the Network Layer) of the seven layer OSI model. Consequently, the undersigned objects to the Examiner's attributing to Rao the ability to provide application layer services based on Rao's mention of routing (see pg. 11 of the Office Action).

Before addressing the particular deficiencies of the proposed combination of references with respect to the claims, the undersigned respectfully submits a *prima facie* case of obviousness has not been established by the Office Action as no ***genuine*** reason has been asserted by the Examiner with respect to why a person of ordinary skill in the art would have combined the alleged prior art elements in the manner currently claimed. In the recent Supreme Court case of KSR Int'l Co. v. Teleflex, Inc., the Supreme Court noted that a court's or Examiner's analysis supporting a rejection under 35 U.S.C. §103(a) should be made explicit, and that it was "important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the [prior art] elements" in the manner claimed (see also Memorandum entitled "Supreme Court decision on KSR Int'l. Co., v. Teleflex, Inc." from Margaret A. Forcarino directed to Technology Center Directors dated May 3, 2007 on this topic). Importantly, KSR reaffirmed the notion that "a patent composed of several elements is not provided obvious merely by demonstrating that each of its elements was, independently, known in the prior art."

For the purported motivation to combine Alles with de Boer and Rao to arrive at claims 1, 6 and 11, the Office action merely states at pg. 8:

> It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Alles to utilize a two ring configuration connected by a tunnel (network path) in the processing of subscriber services as taught by deBoer [*sic*], and to

> utilize application layer processing for the delivery of services as taught by Rao. One of ordinary sill in the art would be motivated to employ deBoer [*sic*] and Rao in order to provide expanded and updated features and services to subscribers.
> (citations to de Boer and Rao omitted)

This generalized boilerplate sounding motivation to combine paragraph is deficient for at least two reasons. First, rejections on obviousness grounds cannot be sustained by mere conclusory statements; rather, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness (see In re Kahn, 441 F. 3d 977, 988 (CA Fed. 2006)). Second, the purported motivations cited are simply the reasons the systems of de Boer and Rao were created. Such motivations do not provide adequate motivation for any and all subsequent innovations in the field. Again, the Examiner's burden is to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the manner claimed. It is respectfully submitted that this burden is not met by simply pointing to general motivations in the field to provide increased speed, bandwidth and efficiency. For at least these reasons, the undersigned believes a prima facie case of obviousness has not been established for combining the

To the extent that a prima facie case of obviousness has been established and with the above brief overviews of Alles, de Boer and Rao in mind, the undersigned now submits the following arguments to point out significant differences between the invention as claimed by the Applicant and the combination of Alles, de Boer and Rao.

Briefly and by way of background without reference to any particular claim, various embodiments of the present invention involve a service processing switch architecture and methodology for providing customers of a managed security service provider with, among other things, both routing services and customized application layer services, such as web hosting, application layer firewall protection and e-mail services by way of at least two service processing switches residing within the managed security service provider's network and wherein at least one of the service processing switches includes a plurality of processors communicatively coupled in a packet-passing ring

configuration and the two service processing switches communicate via a tunnel through an Internet Protocol (IP) network.

Regarding independent claim 1, as amended, Alles, de Boer and Rao do not reasonably teach or suggest individually or in combination "connecting a plurality of processors in a ring configuration within a first network device at a first point-of-presence of a service provider network" as expressly recited. Notably, to address the Examiners' observations with respect to the previously used term "system" (see Response to Arguments para 3.1), the undersigned has amended this limitation to clarify the plurality of processors connected in a ring configuration are within a network device, such as a service processing switch (see, e.g., IP server switch (IPSX) 230). For at least this reason, claim 1 and its dependent claims, which add further limitations, are distinguishable over the ring networked gateways and network elements of de Boer. Meanwhile, neither Alles nor Rao are asserted by the Examiner or understood by the undersigned to involve a network device including a plurality of processors connected in a ring configuration. As a result, Alles and Rao do not remedy the deficiencies of de Boer.

Additionally, Alles, de Boer and Rao do not reasonably teach or suggest individually or in combination "providing customized application layer services for a plurality of customers using at least one processor selected from the plurality of processors in the ring configuration of the first network device." In the Office action, the Examiner indicated the phrase "application layer" would not be considered as a result of the Examiner's perception that the phrase was new matter. In view of the arguments presented above with reference to the 35 USC 112 rejections, the undersigned respectfully requests the Examiner to now give consideration to this limitation as it provides yet another distinguishing feature over the combination of references. As explained above, Alles provides customized service ***policies***. In contrast, the ring configuration of the first network device of claim 1 provides "customized application layer services." With respect to de Boer, as discussed above, the gateways and network elements are not understood to provide "customized application layer services." Instead, the gateways of de Boer simply provide improved protection of inter-ring traffic in the context of a Synchronous Optical NETwork (SONET) "matched nodes" configuration.

With respect to Rao, as explained above, the layer 3 routing performed by Rao cannot be properly equated with an application layer service. The undersigned apologizes for any confusion created by the remarks of the representative of the prior assignee in relation to certain types of routing (i.e., layer 7 routing) being representative of an application layer service. For at least this additional reason, claim 1 and its dependent claims, which add further limitations, are clearly distinguishable over the teachings of the references relied upon by the Examiner.

Regarding dependent claim 5, Alles, de Boer and Rao do not reasonably teach or suggest individually or in combination "forming dual counter rotating ring connections" among the plurality of processors in the manner required. As explained above with reference to claim 1, the ring configuration is among a plurality of processors ***within*** a network device – not a ring network of network devices. On page 13 of the Office action, the Examiner indicates this functionality can be found in col. 3, lines 30-33 of Alles. Meanwhile, with reference to claim 15 at page 10 of the Office action, the Examiner attributes teaching of this functionality to de Boer and indicates Alles "does not disclose a ring configuration." The undersigned respectfully submits neither Alles nor de Boer disclose "forming dual counter rotating ring connections." The portion of Alles relied upon by the Examiner simply relates to load-balancing of packets among a group of processors. Alles describes no specific configuration or relationship of the group of processors. The portion of de Boer relied upon simply discusses the two intersecting rings of network elements and gateways used by de Boer to improve survivability of inter-ring traffic. Again, the undersigned respectfully submits a ring network of network elements and gateways cannot properly be equated to a plurality of processors within a network device connected in a ring configuration. For at least these additional reasons, dependent claim 5 is thought to be further distinguishable over the combination of references relied upon by the Examiner. Meanwhile, Rao is not asserted by the Examiner or understood by the undersigned to involve a network device including a plurality of processors connected in a ring configuration. As a result, Rao does not remedy the deficiencies of Alles and de Boer.

Regarding independent claim 6, as amended, it includes limitations similar to those discussed with reference to claim 1. For example, claim 6 now clarifies the

plurality of processors in a ring configuration are "within a first service processing switch." Claim 6 also includes a means for "providing both router services and customized application layer services for a plurality of customers of a service provider. Therefore, for at least the reasons presented above with reference to claim 1, claim 6 and its dependent claims, which add further limitations, are thought to be distinguishable over the combination of references.

Regarding dependent claim 10, it includes "dual counter rotating ring connections" so is distinguishable over the combination of references for at least the reasons presented with reference to claim 5.

Regarding independent claim 11, it includes limitations similar to those discussed with reference to claim 1. For example, claim 11 requires "a first ring-network hardware platform including a plurality of processors connected in a ring configuration." Claim 11 also requires one or more processors of the plurality of processors of the first ring-network hardware platform to provide both router services and customized application layer services to a second ring-network hardware platform. Therefore, for at least the reasons presented with reference to claim 1, independent claim 11 and its dependent claims, which add further limitations, are thought to be distinguishable over the combination of references relied upon by the Examiner.

Regarding dependent claim 15, it includes "dual counter rotating ring connections" so is distinguishable over the combination of references for at least the reasons presented with reference to claim 5.

Regarding dependent claim 16, the undersigned respectfully submits Alles' discussion regarding load balancing and scalability cited by the Examiner cannot be properly be equated with "a services management system that provides changeable provisioning of processor capacity among a plurality of customers." For at least this additional reason, dependent claim 16 is further distinguishable over the combination of references relied upon by the Examiner.

Regarding dependent claim 18, the undersigned respectfully submits Alles' discussion regarding providing separate processing rules for each subscriber (col. 3, ll. 43-47) and sharing the same ISN by multiple subscribers (col. 3, ll. 58-60) cited by the Examiner cannot be properly be equated with "a services management system that

provides provisioning of processor capacity among a plurality of customers, wherein each customer's resources are isolated from those of all the other customers" as required by claim 18. For at least this additional reason, dependent claim 18 is further distinguished over the teachings of the combination of references relied upon by the Examiner.

Claim Rejections – 35 U.S.C. §103
Alles-de Boer-Rao further in view of Garner

In the Office action, the Examiner rejected claim 2-5, 7-10 and 12 under 35 U.S.C. §103(a) for allegedly being unpatentable over the combination of **Alles**, **de Boer** and **Rao** and further in view of US Patent No. 6,243,580 of Garner (hereafter "**Garner**"). The undersigned respectfully disagrees with the Examiner's characterization of the teachings and/or applicability of Alles, de Boer, Rao and Garner to the claims. The Examiner relies upon Garner solely for its alleged teachings with respect to control and access processors. Without addressing the correctness of the Examiner's observations regarding Garner, it suffices to say for present purposes that Garner does not appear to address the deficiencies of Alles-de Boer-Rao pointed out above with reference to the independent claims from which claims 2-5, 7-10 and 12 depend. Therefore, for at least the reasons presented with reference to claims 1, 6 and 11, dependent claims 2-5, 7-10 and 12 are distinguishable over the combination of Alles-de Boer-Rao and Garner.

New Claims

Nine new claims, i.e., claims 19-27, have been added. No new matter has been introduced by these new claims. The newly added claims are thought to be allowable over the references relied upon by the Examiner for at least various of the reasons presented above with reference to claims 1, 6 and 11.

Additionally, new independent claim 19 expressly requires "providing changeable provisioning of processing capacity between the first subscriber and the second subscriber by programmatically dynamically reallocating resources of the first service processing switch or the second service processing switch between the first partition and the second partition based on comparative processing demands of the first

set of customized application layer services and the second set of customized application layer services."

New dependent claim 26 introduce the concept of processor identifiers (PEIDs) within the packets exchanged between the first service processing switch and the second service processing switch to identify a processor of the plurality of processors of the first service processing switch or the second service processing switch to which the packets are destined. The relied upon references are not thought to teach or suggest the use of PEIDs. For at least this additional reason, dependent claim 26 is thought to be further distinguishable over the relied upon references.

New dependent claim 27 introduces the concept of logical queue identifiers (LQIDs) in addition to PEIDs to identify a software entity to which the packets are destined within the identified processor. The relied upon references are not thought to teach or suggest the use of LQIDs. For at least this additional reason, dependent claim 27 is thought to be further distinguishable over the relied upon references.

Conclusion

Applicant respectfully submits that the amendments and remarks presented herein have overcome the rejections, and that the pending claims are in condition for allowance. Accordingly, Applicant requests that the rejections be withdrawn and that a Notice of Allowance be promptly issued for claims 1-27.

Request for a Telephone Interview

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 303-284-5103.

Respectfully submitted,

HAMILTON, DESANCTIS & CHA

Date June 19, 2007

By /Michael A. DeSanctis/
Michael A. DeSanctis, Esq.
Reg. No. 39,957
Customer No. 64128
Ph: (303) 284-5103